
Enhancers: Multi-dimensional signal integrators.

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Scientific Abstract:

Enhancers play a critical role in regulating tissue-specific gene expression, but their molecular mechanisms of function have not been fully characterized. It is now increasingly clear that enhancers associate with specific protein factors and chromatin modifications and also produce non-coding RNAs known as eRNAs. These predictive signatures have facilitated genomic identification of enhancers and helped characterize tissue-specific gene expression mechanisms. Herein we review recent studies investigating enhancers in mammalian cells, and propose that enhancers function as a central platform integrating lineage-specific transcription factors and epigenetic states with ubiquitous yet signal-dependent transcriptional inputs, culminating in highly specific gene expression programs.

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